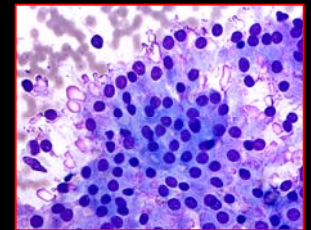


# When should FNA be performed using palpation for guidance?

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# General Agreement:

Acknowledging the benefits of ultrasound evaluation of the thyroid & ultrasound-guidance for fine needle aspiration,

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There are occasions when *either palpation or ultrasound-guided FNA* of a thyroid nodule are reasonable to perform

# More specific?

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- When is palpation-guided FNA equal in efficacy to ultrasound-guided FNA? (*non-inferiority*)
- When is ultrasound-guided FNA superior to palpation-guided FNA? (*superiority*)

# Non-inferiority:

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Available data: Single institution, retrospective datasets:

## Initial Aspiration Cytology

## Proportion:

Benign:	68-74%
Suspicious:	11-13%
Malignant:	4-5%
Non-diagnostic:	11-15%

Findings: Palpation-guided FNA is effective.

Questions: Is variance due to practitioner differences or methodologic differences?

# Superiority:

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- Comparative studies have demonstrated the benefits of ultrasound-guided FNA over palpation-guided FNA
  - *improved accuracy of aspirates*
  - *reduced non-diagnostic aspirates*
  - *impact on patient management*

Conclusions: When *NOT* to perform palpation-guided FNA

# How good is routine physical examination?

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	On US, had either <i>solitary or multiple</i> nodule(s) >1cm	On US, had <i>NO</i> <i>thyroid nodules</i> >1cm
On Phys Exam:		
I. Solitary Nodule:	81%	19%
II. Multiple Nodules:	80%	20%
III. Diffuse or Asym. Goiter	55%	45%

*Ultrasound should be obtained if any abnormality is suspected.*

# Prevalence of *nonpalpable* nodules >1cm in general population:

	<i>Subjects:</i>	<i>US:</i>	<i>Palpation:</i>	<i>Missed on palpation:</i>
Brander <i>Age 19-50</i>	253	20 (8%)	8	12 (60%)
Tomimori <i>Age 27-58</i>	547	18 (3%)	7	11 (61%)
Wiest <i>Age 20-72</i>	2,441	111 (5%)	30	81 (73%)

# *Nodule detection: palpation vs. US*

<i>Nodule Size:</i>	<i># detected on US:</i>	<i># detected palpation</i>	<i>% <u>MISSED</u> by palpation:</i>
<1cm:	16	1	94%
1-2cm:	28	14	50%
>2cm:	33	19	42%



# Accuracy of FNA: *False Negative Aspirates*

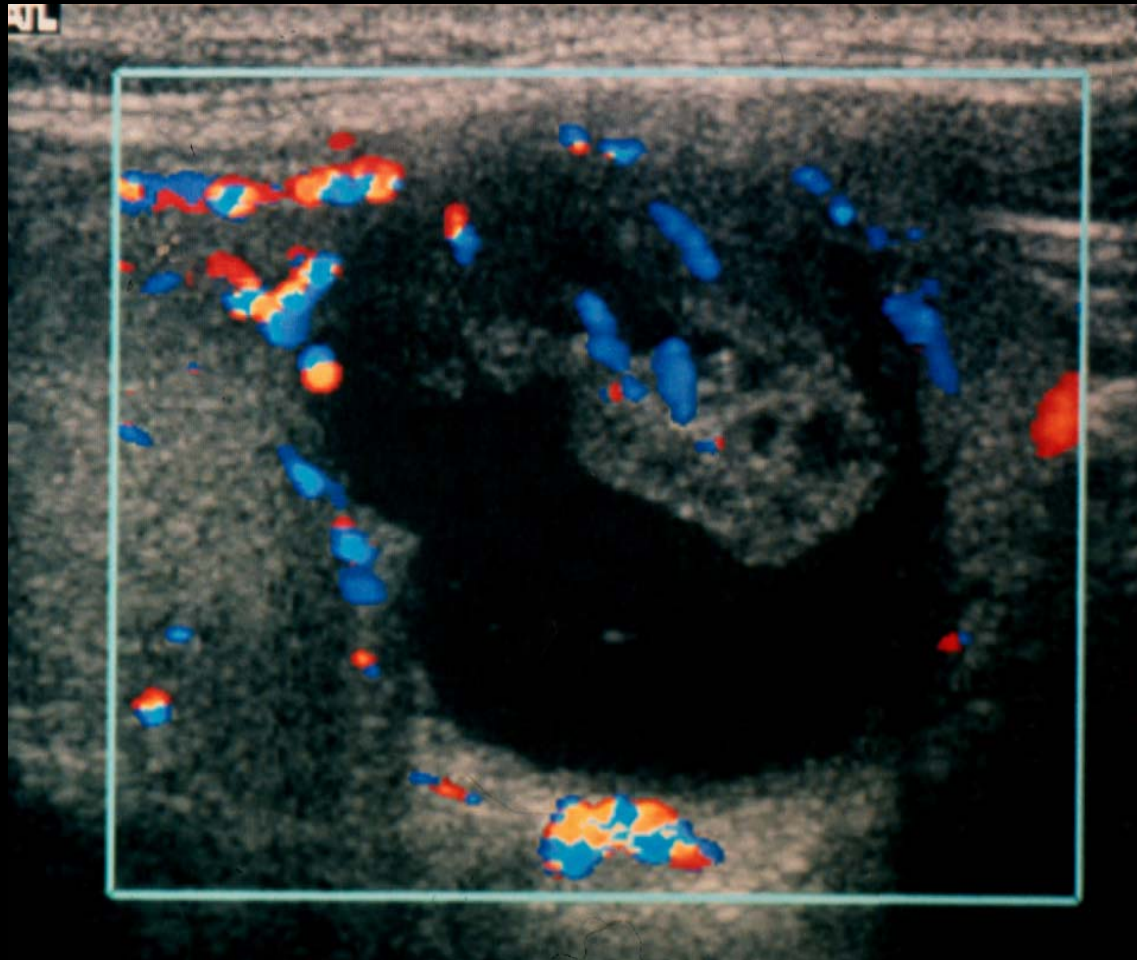
	<i>Palpation- Guided FNA</i>	<i>Ultrasound- Guided FNA</i>
Danese	2.3 %	0.6 %
Carmeci	0.5 %	0 %
Leenhardt		0.1 %
Grant	0.7 %	
	<u>~ 1-2%</u>	<u>~ 0.1- 0.6%</u>

# *Non-Diagnostic Aspirates:*

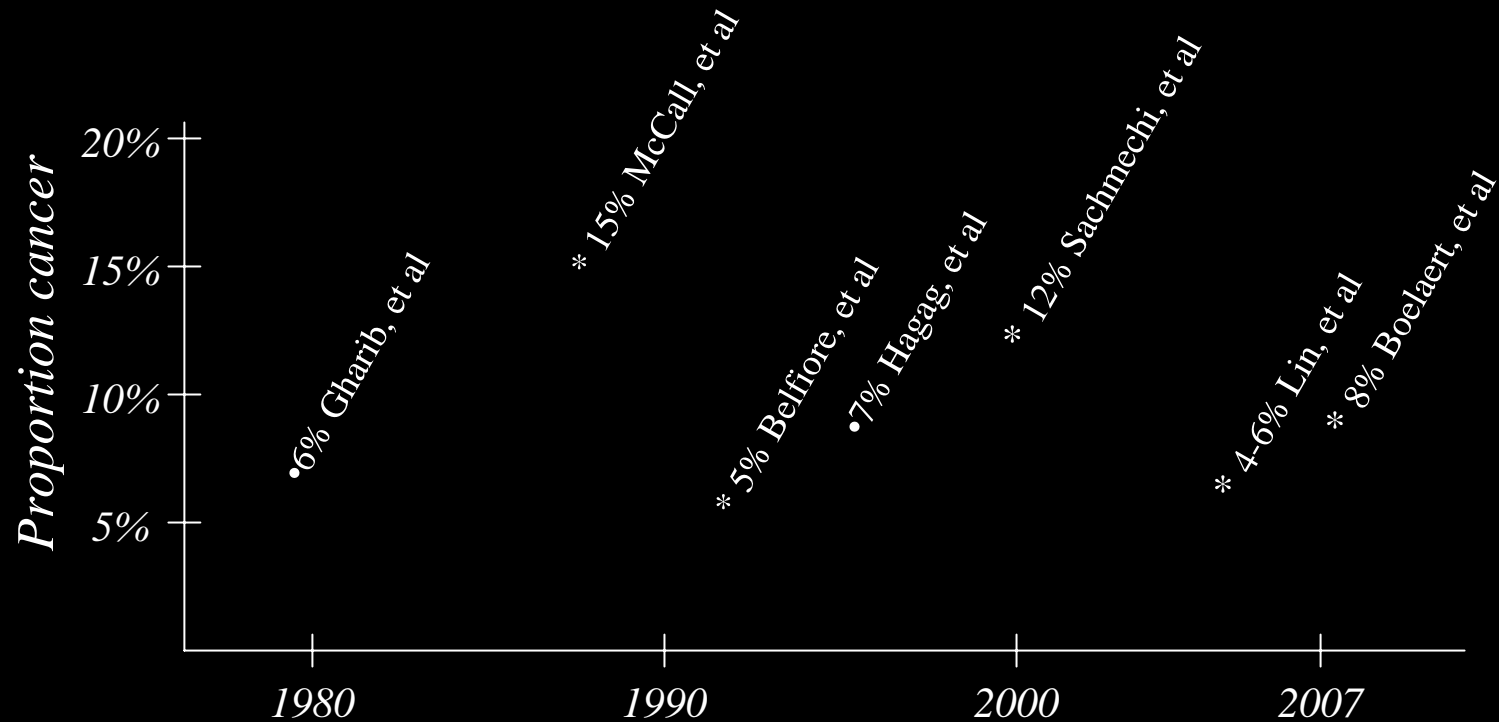
	<i>Palpation- Guided FNA</i>	<i>Ultrasound- Guided FNA</i>	<i>Reduction:</i>
Danese:	9 %	4 %	<b>56 %</b>
Carmeci:	16 %	7 %	<b>56 %</b>
Hatada:	30 %	17 %	<b>43 %</b>
Takashima:	19 %	4 %	<b>79 %</b>

**Uncertainty:** Reduction accounted for by cystic nodules?

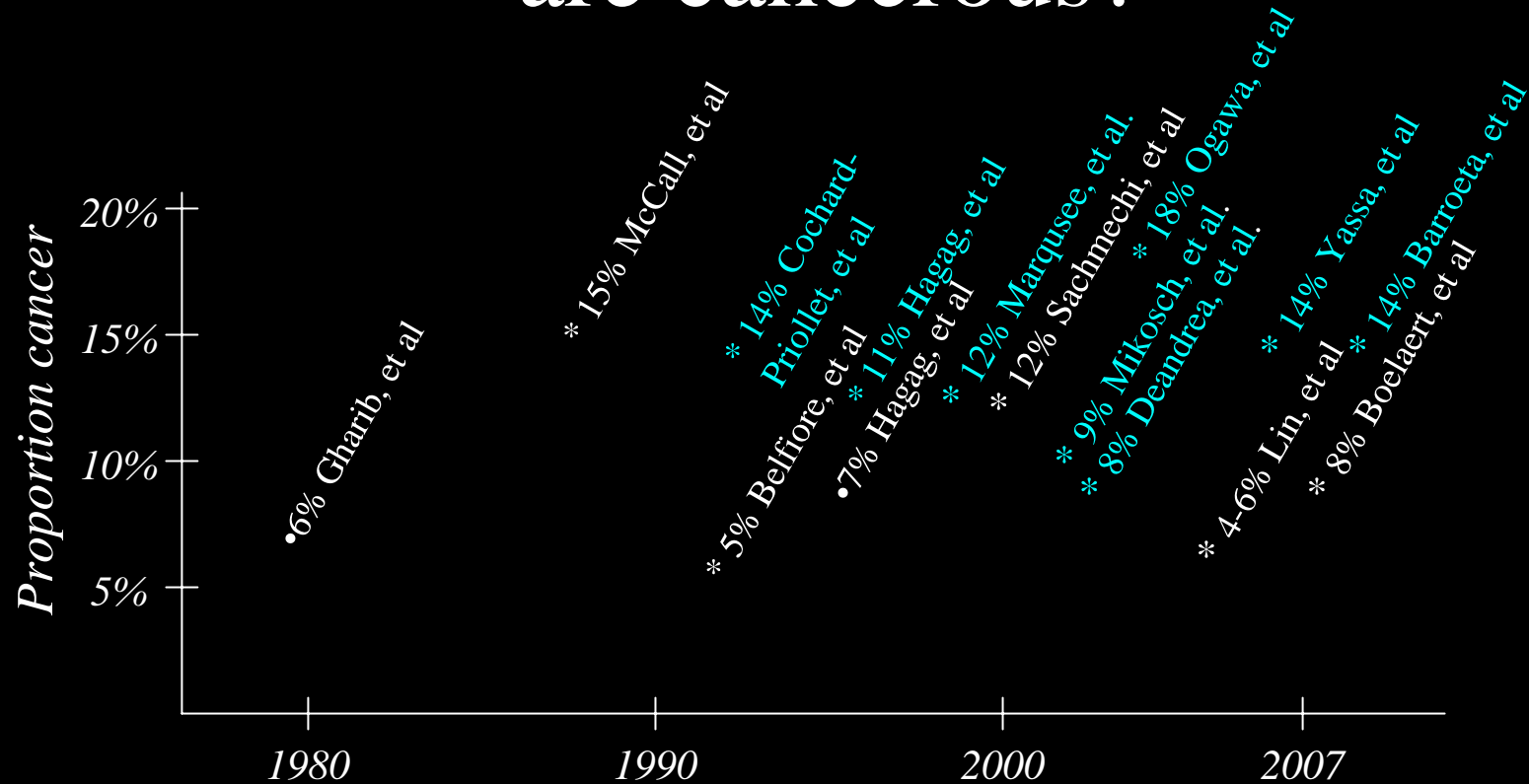
# Cystic Thyroid Nodule



# What proportion of Thyroid Nodules are cancerous?

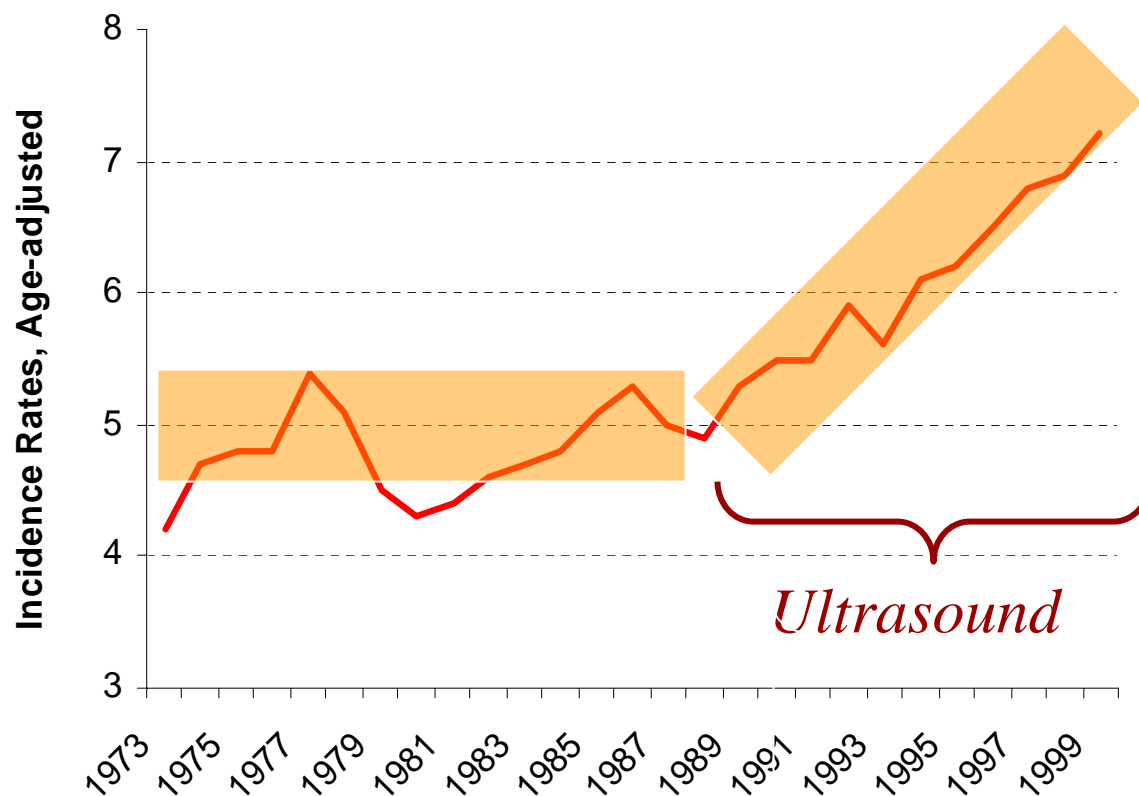


# What proportion of Thyroid Nodules are cancerous?



*The proportion of nodules cancerous has increased over the last 25yrs. In general, there exists an 8-15% risk a nodule >1cm is malignant*

# *SEER* Thyroid Cancer Incidence\* (Age Adjusted); 1973-1999



\* Rates per 100,000 and age-adjusted to the 2000 US standard population by 5-year age groups

# When should palpation guidance *NOT* be used?

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- *if the nodule not confirmed by Ultrasound*
- *if the nodule is not discretely palpable*
- *if the nodule is >25% cystic; or small (?)*
- *if a prior non-diagnostic aspirate has been obtained*
- *If the neck anatomy is altered by illness*

# The primary benefits of palpation guidance:

- *Reduced Cost*
- *Logistical efficiency and potential time-savings for the patient*



# Reasonable Conclusions:

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- In the evaluation of individual patients with nodular disease, there are occasions when *either palpation or ultrasound-guided FNA* of a thyroid nodule are reasonable to perform.
- In particular, *palpation-guided FNA* may apply to thyroid nodules easily palpated on physical examination, confirmed by ultrasound, located anterior within the gland, and containing solid parenchyma. A prior non-diagnostic aspirate has not occurred.
- When patients or nodules do not fulfill above criteria, or when skilled FNA operators are not readily available, ultrasound-guided FNA should be considered.